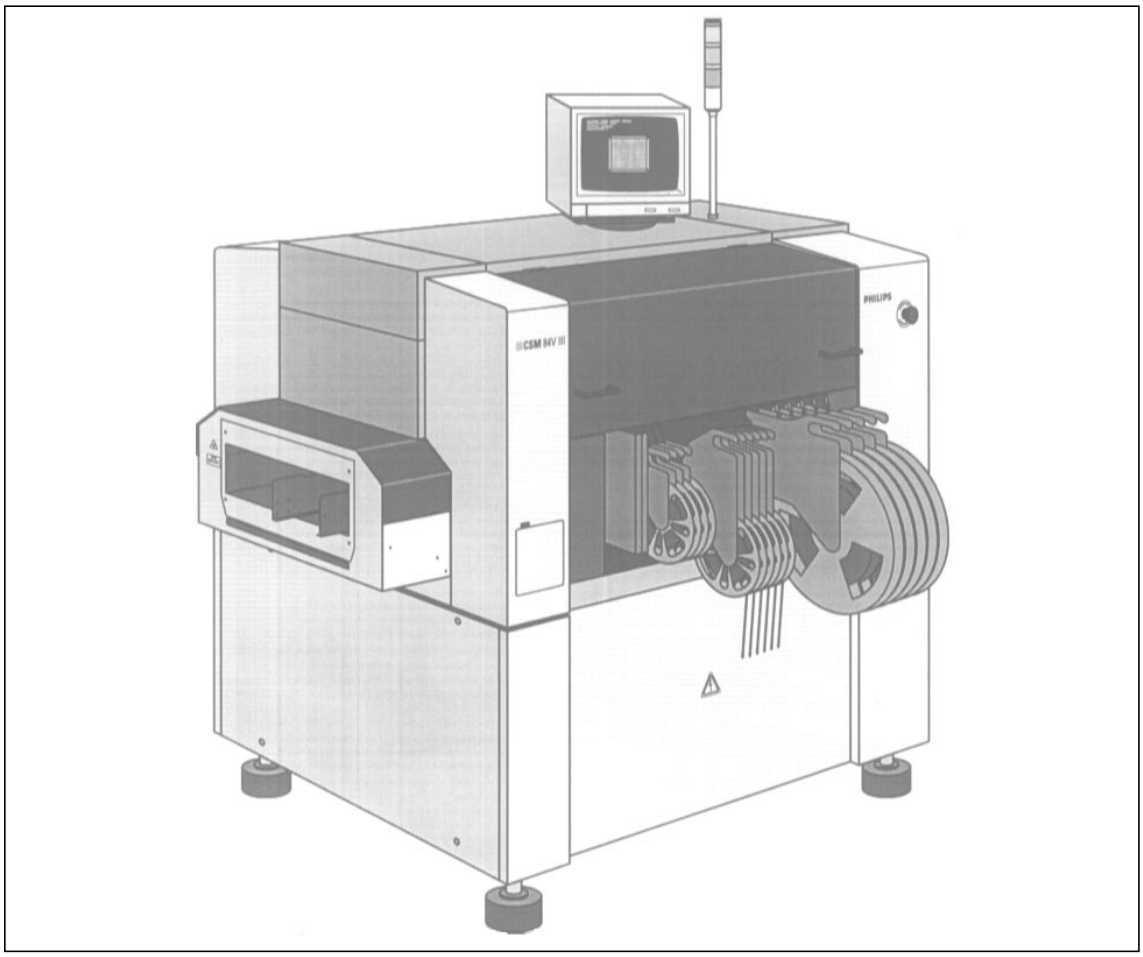
PA 1306/40/50/60/61

CSM 66/84/84V III



Pre-installation Manual

Philips
Electronic Manufacturing
Technology

PHILIPS

Manual Number: **5322 871 63303**
Revision Code: **96.00**
Issue date: **Feb-97**

SAFETY

Read this page carefully before installation and use of the Unit.

Introduction

Adjustment, maintenance and repair of this Unit should only be carried out by qualified personnel who are aware of the hazards involved, unless otherwise indicated in the Instructions for use.

Safety precautions

For the correct and safe use of this Unit it is essential that both operating and service personnel follow generally accepted safety procedures in addition to the safety precautions specified in this manual. Specific warning and caution statements, where applicable, are to be found throughout the manual. Warning and caution statements and/or symbols are present on the Unit where necessary.

Caution and warning statements

A “**CAUTION**” is used to indicate correct operating or maintenance procedures in order to prevent damage to, or destruction of, equipment or other property.
A “**WARNING**” indicates a potential danger that requires correct procedures or practices in order to prevent casualties.

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Manual Number: **5322 871 63303**

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TO:

Philips Electronic Manufacturing Technology

Supply Centre Customer Support
P.O. Box 218
Building BAF 2
5600 MD Eindhoven
The Netherlands

PRE-INSTALLATION MANUAL CSM 66/84/84V III

Table of Contents

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CHAPTER 1 Introduction

The purpose of this publication is to describe physical details of the site, services that must be available and ambient conditions required to accomodate the system and to allow it to produce according to the high performance it is designed for.

It must be emphasised that the time and expense devoted to a proper survey of the site of the system will be rewarded by a trouble-free, consistent operation and the resulting reduction in down-time.

1.1 Responsibilities

The customer is responsible for the pre-installation. Pre-installation means all the work that has to be done, as agreed on the basis of the check list (see section 7), to prepare the site and to make it suitable for installation and operation of the system.

The RSC/NSO customer support organization is responsible for pre-installation site survey. The Supply Centre can advise on generally suitable locations.

The pre-installation site survey must be part of the negotiations before finalizing the order.

A check list of the principal conditions is provided in section 7, which should be completed during the site survey.

1.2 Useful Conversions

NOTE: All measurements are given in metric units.

PHYSICAL QUANTITY	SI SYMBOL	CONVERSION FACTORS
Length	m	1 cm = .4 inch 1 inch = 2.54 cm 1 metre = 39.37 inches 1 mile = 1.609 km
Volume	m^3	1 imp. gall. = 4.55 l 1 US gall. = 3.79 l 1 litre = 1.76 pints 1 Nl = 1 l at 0 °C and 1 atm.
Mass	kg	1 kg = 2.2 lb 1 lb = 455 gm 1 oz = 28.35 g
Force	N	1N = 1 $kg.m/s^2$ 1 kgF = 9.8 N
Pressure	Pa (N/m^2)	1 atm. = 1013.25 mbar 0.1 dyne/$cm^2$1 Torr = 1 mm mercury 1 mbar = 100 Pa 1 PSI = 6900 Pa
Work/energy	J (Nm, Ws)	1 J = 10^7 ergs 1 cal. = 4.1868 J
Power	W (J/s)	1 HP = 735.5 W
Temperature		°C = 5/9x(°F-32) °F = (9/5x°C)+32

TABLE 1: Conversion table.

CHAPTER 2 General Requirements

There are many interrelated factors that determine suitability of the location for the system and each of these factors requires careful consideration. All aspects of the site must be detailed.

This chapter gives guidance by outlining the various aspects.

It is not possible to cover all the situations likely to be met. Should there be any doubt regarding the suitability of the proposed site, our team of experienced engineers will gladly advise on the best course to take.

2.1 Site

The basic system (including built-in options), which can be part of a flow line, will be installed in a normal clean production environment. Adequate working space must be allowed for operation, maintenance and servicing.

The site must meet the requirements of an average industrial environment.

Apart from the above-mentioned requirements, the site must provide the following facilities:

- Ducts in the floor or in the ceiling to accommodate electrical cables, and air hoses.
- Facilities to clean parts of the system.
- Facilities to store tools, maintenance materials, feeders, tape reels and documents etc. near the system.
- Mains wall socket for test and measuring equipment (connected to the same mains group as the main system).
- Mains wall socket for connection of vacuum cleaner.
- A floor covering which is easily cleaned and impervious to oil.

The following aspects should also be considered when siting the system:

- An external telephone line nearby.

2.1.1 Ducting

The services required for the system can be divided into the following three groups, each with a different type of ducting:

- The mains voltage cable must be routed through a separate metal duct or pipe, which must be connected to earth, to avoid EMI problems. It is not allowed to route signal cables through this duct or pipe.
- The signal cables, such as telephone, must be routed through another metal duct or pipe, connected to earth, as necessary.
- Compressed air supply can be delivered by metal pipes or hoses. To prevent earth loops and transfer of vibration, it is recommended to connect a piece of flexible hose between the fixed pipe and the system.

2.1.2 Lighting

Measures should be taken to prevent light falling on the monitor screen, and into the camera of vision systems.

2.1.3 Maintenance Area

Regular preventive maintenance must be executed to ensure optimum availability of the system.

A separate room provided with facilities for cleaning the various parts of the system is strongly recommended in order to carry out maintenance actions in an area separated from the system itself. As cleaning solvents are used which may give off harmful vapours, the area must meet the local safety requirements and a proper means of disposal of waste materials is recommended. (Refer also to chapter 5 on maintenance.)

2.2 Storage

Space should be assigned in the direct neighbourhood of the system for the storage of commonly used media such as diskettes and materials such as documentation, operating tools and consumables.

Diskettes must be kept in dust-proof containers and stored away from sources of magnetism. Shocks and vibrations must be avoided.

2.3 Accessibility of Selected Site

The system is shipped in one crate (see note below).

The dimensions of the CSM III crate are as follows:

- Height 1610 mm
- Width 1400 mm
- Depth 1700 mm
- Gross weight approximately (max. size crate with contents) 640-775kg

The dimensions of the optional CSM trayfeeder 31 crate are as follows:

- Height 1370 mm
- Width 1290 mm
- Depth 1270 mm
- Gross weight approximately (crate with contents) 230 kg

NOTE: Depending on the order, the shipment can include additional crate(s), which contain a number of smaller items, such as CSM trayfeeder, tape feeders, etc. The dimensions of these crates depend on the number and size of the ordered items, but will always be smaller than the above-mentioned crate.

The equipment should be unpacked as close to the final site as possible. Access doors must have minimum dimensions of 1810 mm height and 1600 mm width (the dimensions are larger than the actual sizes to allow room to manoeuvre).

2.3.1 Transport

The dimensions of the uncrated CSM III system are as follows:

- Width 1600 mm
- Height, without signal pole and monitors 1330 mm
- Height, with signal pole (max. height) 1840 mm
- Depth, without feeders 1140 mm

Ensure that adequate access is provided to move this system to its final location.

NOTE: The customer must arrange equipment for transporting the system. Depending on the local circumstances, the following equipment may be required:

- fork lift truck: lifting capacity 2500 kg; fork length > 1400 mm,
- sheet steel to protect the floor,
- two pallet cars,
- trolleys,
- winches,
- two wooden beams 2000 cm long, 100 x 100 cm square.

2.4 Space and Floor-Loading Requirements

This paragraph provides the principal characteristics of the system (see figs. 2.1 to 2.3 and the tabels below).
The minimum access clearance mentioned in the following paragraphs relates to the space needed both for servicing and/or operation.

OVERALL DIMENSIONS (mm)	
Depth, without feeders	1440
Depth, with tape feeders, max. size tape reel, and tape feeder retracted	2140
Width	1600
Maximum height (with feet set max.)	1860
Minimum ceiling height	2200

MINIMUM ACCESS CLEARANCE (mm)	
Rear/Front	1000
Left/Right (in case of stand alone)	1000

MINIMUM OVERALL FLOOR SPACE	
For siting, operation and service ; in line, without CSM Trayfeeder stand alone, without CSM Trayfeeder in line, with CSM Trayfeeder stand alone, with CSM Trayfeeder	 4140 x 1600 mm 4140 x 3600 mm refer to fig 2.1 4140 x 3600 mm
Weight CSM III Weight CSM Trayfeeder	approx. 600 kg approx. 100 kg
Supporting feet (fig. 2.3) for both the CSM III and CSM Trayfeeder	4 adjustable feet (range 35 mm)
Average floor loading (over 4 feet) CSM III CSM trayfeeder	 $55.6 \times 10.^4$ N/m^2 $9.28 \times 10.^4$ N/m^2
Floor loading per foot CSM III CSM Trayfeeder	 $13.9 \times 10.^4$ N/m^2 $2.32 \times 10.^4$ N/m^2
Floor requirements	Supporting feet must rest directly on a concrete floor or on steel plates 250 x 250 x 10 mm.

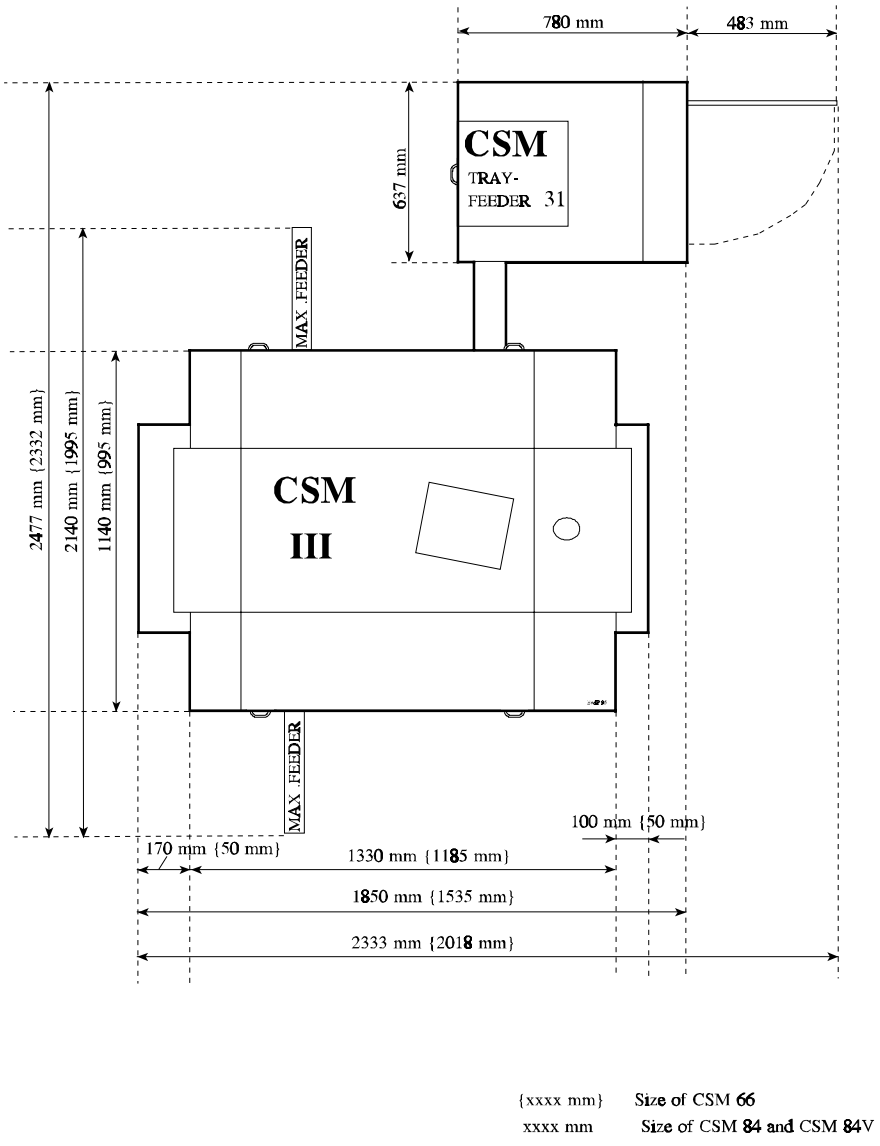

FIGURE 2.1a: Floor space requirements.

This figure details:

- The maximum area needed for the system.
- The area needed for the main options.

All dimensions are in mm.

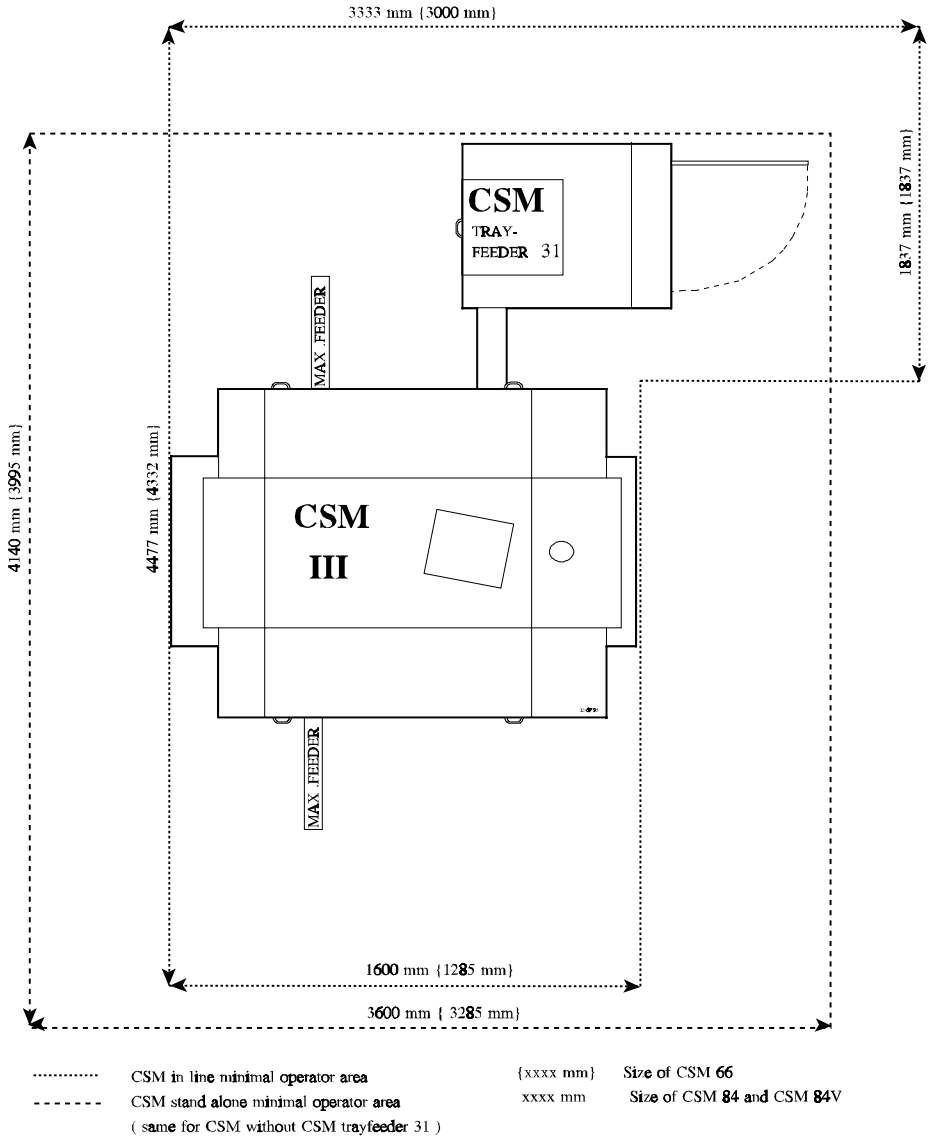

FIGURE 2.1b: Floor space requirements.

This figure details:

- The area needed for the operator.
- The area needed for the service and maintenance.

All dimensions are in mm.

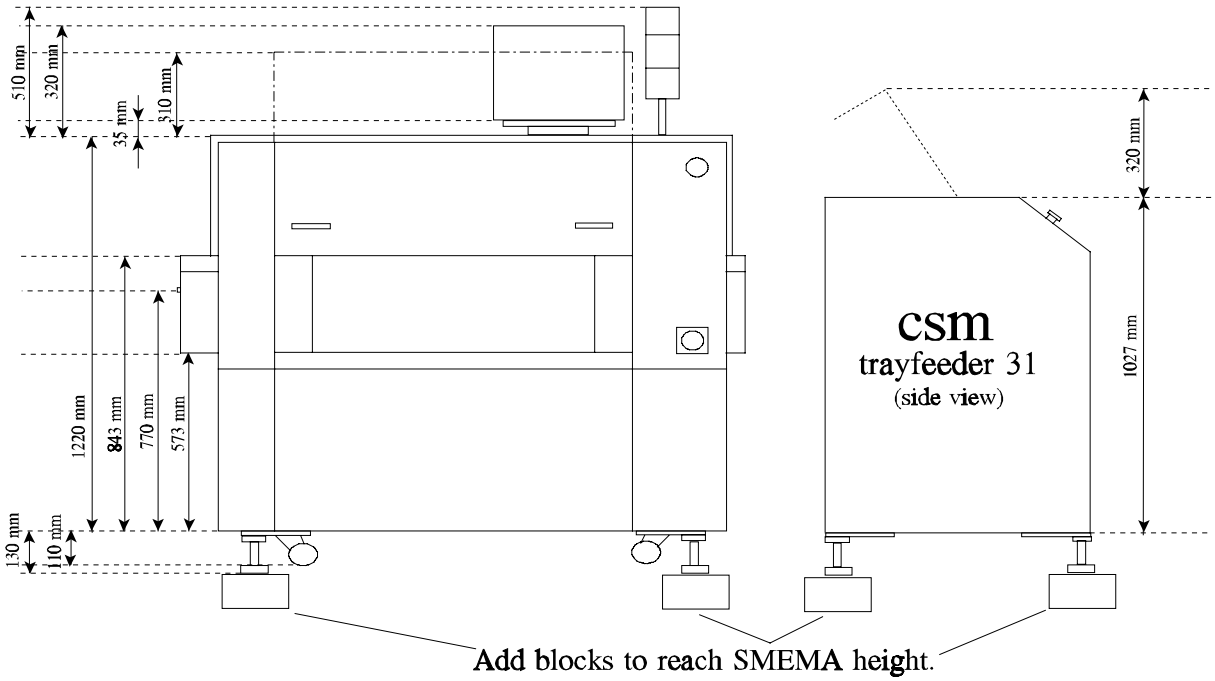

FIGURE 2.2: Height dimensions.

This figure details:

- The maximum height of the system incl. main Options.
- The dimensions of protuding parts (monitors,lamp poles etc.).
- Where to add block if SMEMA height of conveyor has to be reached.

All dimensions are in mm.

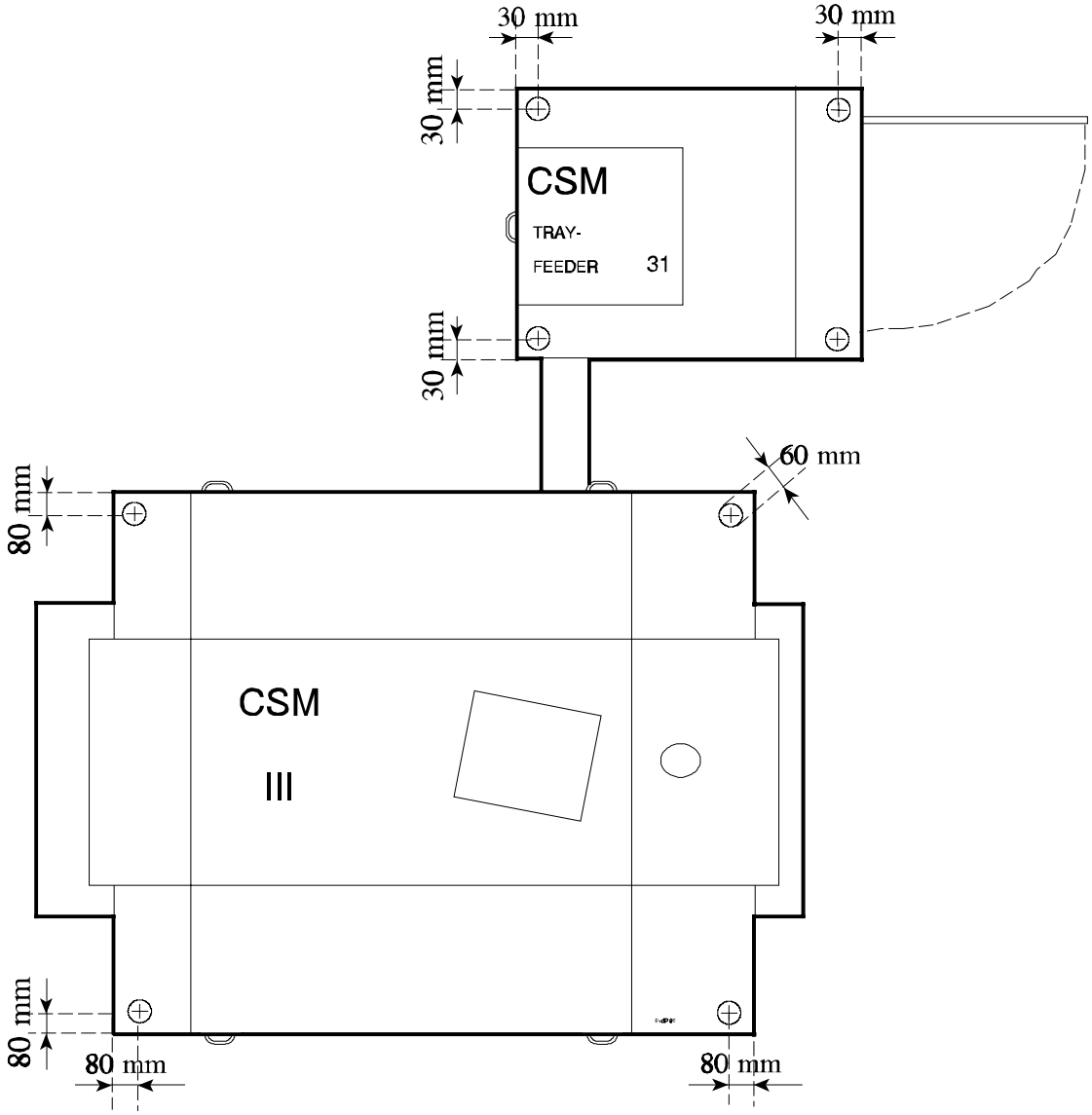

FIGURE 2.3: Supporting feet.

This figure details:

- The floor plan and its dimensions.
- The exact position and size of the supporting feet.
- The floor plan of the main Options.

All dimensions are in mm.

CHAPTER 3 Environmental Conditions

3.1 Operating Conditions

- Ambient temperature range.
  - operation within specification — from +20 to +28 °C
  - all functions operational — from +15 to +35 °C
- Max. permissible rate of temperature change — 1°C/hour, 0.1°C/min.
  - Relative humidity at 20°C — 80%, dew point below 18 °C
  - Ambient air pressure — from 800 to 1100 mbar
  - Dust class (average industrial environment) — 100,000

3.2 Static Electricity

If the factory in which the system will be installed is ESD (**E**lectro**S**tatic **D**ischarge) safe, no special measures are required for operator use.

However, special attention must be paid to electrostatic discharge prevention during maintenance activities. These measures must be known and applied by all maintenance engineers.

CHAPTER 4 Services Required

4.1 Compressed Air Supply

An air supply with a pressure of 5.0 to 8.0 x 10^5 N/m^2 (5 to 8 bar) must be connected to the system via a 16 mm hose pillar suitable for high pressure hoses with an internal diameter of 10 mm.

4.1.1 Specification of Compressed Air Supply

Pressure at system	> 5 x 10^5 Pa (abs)
Flow	40 Nl/minute
Oil content	≤ 0.1 mg/m^3
Dew point	< 2°C at 7.0 x 10^5 Pa < 4°C at 7.2 x 10^5 Pa
Dust particles size	< 10µm
Connection to system	via 20 mm diameter coupling, (see fig. 4.1)

NOTE: The pressure specified must remain within specification at maximum flow.

NOTE: A compressed air supply that does not meet the above specifications will increase the frequency of carrying out the following maintenance actions:

- Cleaning of the vacuumsystem and the micro-ejectors (venturi's) if the oil content exceeds the permissible level.
- Draining the water from the mist filter (MF600-04-A) if the water vapour content exceeds the permissible level.
- Cleaning of the air filter (F600-04-BG-A) if the dust content exceeds the permissible level.

In such cases, the compressed air supplier must take measures by installing gas filters, etc. as required.

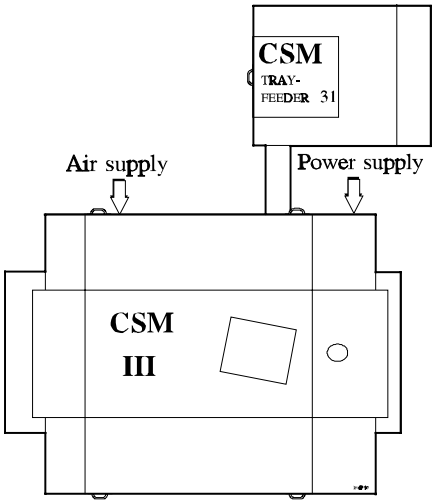

FIGURE 4.1: Connections.

4.2 Mains Voltage Supply and Earthing

The system can be connected to most common single-phase mains supplies, from 200 V to 240 V, 2-wire, with one earth wire. For other mains supply configurations, the customer must take measures to adapt the local mains supply configuration to the required configuration.

4.2.1 Specification of Mains Voltage Supply

Mains supply required	200-240 Volts ± 10% Single phase
Power consumption	2.0 kVA (nominal) 4.0 kVA (maximum)
Power factor	0.85
Frequency	50 Hz or 60 Hz
Frequency stability	±2%
External fusing	16 A slow-blow
Line voltage fluctuation	+ 10% (slow variations and short during transients
Connections	via 3 wire cable (see fig. 4.1) (cable diameter 1.8 mm),
Cross-section of mains cable	3 x 2.5 mm^2

4.2.2 Specification of Earthing

Connection: The system must be connected to factory earthing via the mains cable.

Earth resistance: Less than <0.1 ohm.

4.3 Local Area Network (LAN)

Not applicable for this machine.

4.4 External Emergency Circuit

Not applicable for this machine.

4.5 SMEMA Interfacing

The system is designed in such a way, that it complies with the SMEMA standards. With every system one SMEMA interface cable (length 200 cm) will be delivered. If the system needs to work with equipment that is not supplied by Philips - AAA, this equipment must comply with the SMEMA standards. The SMEMA cables must be made in advance, according to the drawing of fig. 4.2 and the specification given below.

Cable specification: 4 wires,
Cable connector for both ends consisting of the following parts per connector:

- CPC 14p connector pin: AMP 206044-1
- 5-pin contacts: AMP 202236-1
- cable clamp: AMP 206070-1,

Circuit diagram connector points 1 to 4 must be connected to 1 to 4.

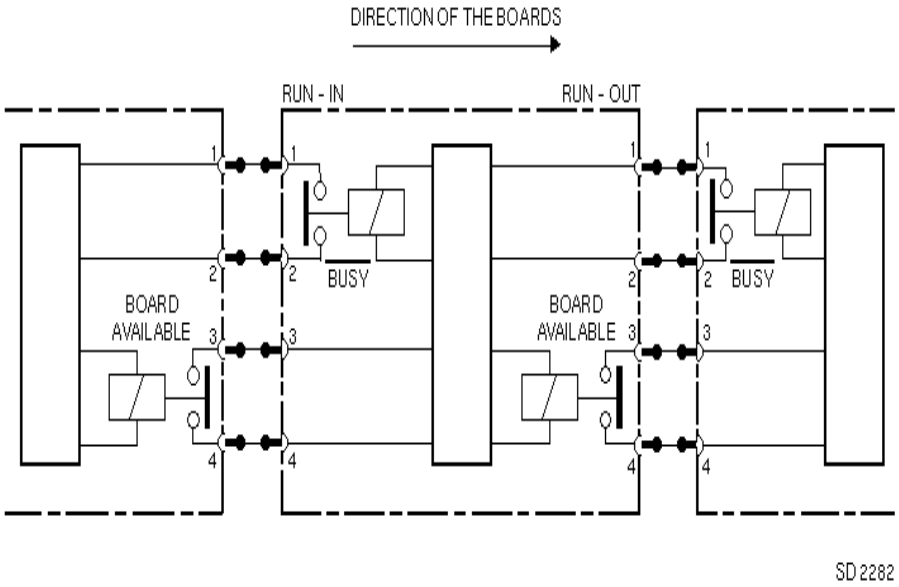

FIGURE 4.2: SMEMA interfacing.

CHAPTER 5 Maintenance Area

The most important user maintenance activities involve cleaning and lubrication of tooling. Provisions must be made to enable maintenance to be carried out efficiently and safely.

A separate room is recommended for carrying out the cleaning actions. This room should be provided with an exhaust system and have a well-illuminated and easy to clean working table, a chair and storage cabinets for spare parts and consumables.

The availability of a clean compressed air supply may be very useful.

Equipment and materials required for cleaning and lubrication that are not supplied by Philips are listed below:

- Storage bottles (e.g. preservers) for solvents,
- Isopropanol,
- Solvent resistant gloves,
- Mirror on stick,
- Vacuum cleaner,
- Flashlight,
- Lint-free tissue paper (clean room wipes),
- Camel hair brush for removing dust from the lense,
- Small pipe brushes in sizes from 2mm - 6mm,
- Magnifying glass 10X or magnifying glass lamp,

Refer to module 2.2 in service manual for cleaning and greasing materials.

For regular maintenance, it is strongly recommended to have the following kit on site:

- PA 2973/04 First Aid Kit

This kit contains all spare parts needed for first line maintenance on the system.

If no metric tools are available, a set of metric tools as described in the Appendix 8.2, is strongly recommended.

Other aspects which should be considered are:

- Storage cabinet for documentation, updates, Service Informations, Logbooks, etc.
- Storage cabinet for chemicals,
- Storage of spare parts, consumables, feeders, etc.,
- Storage rack for feeders etc.,
- Logistics system to control:
  - the flow of items that must be repaired
  - to prevent defective items from being reused on the machine
  - the usage of tools, feeders etc.
  - the flow of items shipped to Philips for repair.

CHAPTER 6 Storage, Transport & Unpacking of Crated System

The space required to temporarily store a crated system can be derived from the data given in Section 2.3. The most important environmental conditions for storage and transport of the crated system is given below:

- Temperature: -25 to +55 °C (<70 °C for a period of 24 hours).
- Relative humidity: 5 to 90% (No condensation. Before unpacking, leave the system in the crate for a minimum of 1 day for acclimatisation purposes.).
- Vibration: 10 to 55 Hz 0.6 mm peak to peak.
- Bump < 10 g for 6 ms.
- Storage sheltered area.

Unpacking is restricted to Philips engineers. For unpacking, the following tools must be available at the customer's site:

- anti-clockwise mains or pneumatic screwdriver,
- crosshead bits for screwdriver,
- open-ended spanner M24 (width 36 mm).

CHAPTER 7 Pre-installation Conditions Check List

SUBJECT	REQUIREMENTS	ACTUAL (MEASURED) VALUE	REMA-RKS
MINIMUM DOOR OPENING			Sect. 2.3
- width	1600 mm		
- height	1810 mm		
MINIMUM CEILING HEIGHT	2200 mm		Sect. 2.4
MINIMUM FLOOR SPACE	3600 x 4140 mm		Fig. 2.1
FLOOR LOADING			Sect. 2.4
- average	> 55.6 10^4 N/m^2		
- per foot	> 13.9 10^4 N/m^2		
LIGHTING			Sect. 2.1.2
ENVIRONMENTAL CONDITIONS			Sect. 3.1
- temperature	+20 to +28 ˚C		
- relative humidity	80%		
- ambient air pressure	800 to 1100 mbar		
- dust class	100,000		
COMPRESSED AIR SUPPLY			Sect. 4.1
- pressure	> 5 x 10^5 Pa (abs)		
- flow	650 Nl/minute		
- oil content	≤ 0.1 mg/m^3		
- dew point	< 2˚C at 7 x 10^5 Pa < 4˚C at 7.2 x 10^5 Pa		
- dust particles size	< 10 µm		

Pre-installation Conditions Check List

SUBJECT	REQUIREMENTS	ACTUAL (MEASURED) VALUE	REMARKS
MAINS VOLTAGE SUPPLY			Sect. 4.2.1
- mains supply	200 to 240 V		
- voltage variation	±10% (inlc. transients)		
- power consumption	2.0 kVA (nominal) 4.0 kVA (peak)		
- mains connection	1-phase with earth via 2.5 mm^2 conductors		
- frequency	50 Hz or 60 Hz ±2%		
FUSING/EARTHING			
- resistance	< 0.1 ohm		Sect. 4.2.2
MAINTENANCE AREA			Chap. 5
STORAGE AND TRANSPORT			
- storage needed?		yes/no	
- environmental conditions for storage and transport . temperature . relative humidity	 -25 to +55 ˚C (< +70 ˚C for 24 hours) 5 to 90% (no condensation)		Chap. 6
- transport equipment available?		yes/no	Sect. 2.3.1
- unpacking tools available?		yes/no	

Pre-installation Conditions Check List

SUBJECT	REQUIREMENTS	ACTUAL (MEASURED) VALUE	REMARKS
INSTALLATION			
- Tools available		yes/no	Sect. 8.2.1
- System layout drawing available?		yes/no	
TESTING			
- Action spec. available?		yes/no	
- Component tapes available for testing?		yes/no	
- PCB carriers available?		yes/no	
ACCEPTANCE TEST			
- Acceptance test procedure agreed?		yes/no	

NOTE: Any deviation from these installation and safety requirements may cause detoriation in system specification.

Customer Support acceptance .....

User acceptance .....

Date .....

Pre-installation Conditions Check List

CHAPTER 8 Lubricants/Oils and Special Tools

8.1 Suppliers of Lubricants

Refer to module 2.2 in Service manual for maintenance, cleaning and greasing materials.

8.2 Special Tools

8.2.1 Recommended Set of Metric Tools

QTY:	DESCRIPTION:
1	Open end/ring wrench 5 mm
1	Open end/ring wrench 5.5 mm
1 set	Open end/ring wrenches 6 - 22 mm
1	Socket screwdriver 4 mm
1	Socket screwdriver 5 mm
1	Socket screwdriver 7 mm
1	Socket screwdriver 8 mm
1	Socket screwdriver round-head 2.5 mm
1	Socket screwdriver round-head 3 mm
1	Socket screwdriver round-head 4 mm
1	Socket screwdriver round-head 5 mm
1 set	Allen keys 1.5 - 10 mm
1 set	Allen wrenches (short)
1 set	TORX right-angled screwdrivers
1	Screwdriver no. 1 insulated
1	Screwdriver no. 2 insulated
1	Screwdriver no. 3 insulated
1	Screwdriver no. 4 insulated
1	Screwdriver no. 5 insulated
1	Screwdriver no. 4 short
1	Screwdriver no. 4 square
1	Screwdriver clamping M2 - M3.5
1	Screwdriver clamping M3.5 - M5
1 set	Screwdriver Boley
1	Phillips screwdriver no. 0
1	Phillips screwdriver no. 1
1	Phillips screwdriver no. 2
1	Measuring tape 2 meter
1	Calliper gauge 150 mm
1 set	Feeler gauges 0.03 - 0.5 mm
1	Spring-pressure gauge 100 - 1000 N

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